

Machine Learning in Robotics					AR-310
Rota	Duration	Semester	SWS	Credit Points	Workload
annually SS	1 Semester	2 nd (Semester)	3 SWS	5	150 h
1	Modul Structure				
	Course (Abbreviation)	Type/ SWS	Presence	Self Study	Credit Points
	a) Machine Learning in Robotics (LIR)	Lecture/ 2 SWS	25 h	65 h	3
	b) Machine Learning in Robotics (LIR)	Tutorial/ 1 SWS	15 h	45 h	2
2	Language English				
3	Content 1. Fundamentals of Machine Learning 2. Nonlinear Regression 3. Neural Networks 4. Deep Learning 5. Reinforcement Learning Literature: Ian Goodfellow, Yoshua Bengio, Aaron Courville, Deep Learning, MIT Press, 2016 Bruno Siciliano, Oussama Khatib: Springer Handbook of Robotics, 2nd edition, 2008 Richard Sutton, Andrew G. Barton, Reinforcement Learning an Introduction, 2nd edition, MIT Press, 2018 Selected publications from journals and conferences.				
4	Competencies The students acquire a profound knowledge of theoretical concepts and practical applications of machine learning in robotics. Students are able to solve machine learning tasks for supervised and reinforcement learning with methods and algorithms within Matlab and ROS.				
5	Examination Requirements Written exam				
6	Formality of Examination <input checked="" type="checkbox"/> Module Finals <input type="checkbox"/> Accumulated Grade				
7	Module Requirements (Prerequisites) none				
8	Allocation to Curriculum: Program: Automation & Robotics, Field of study: Robotics, Cognitive Systems				
9	Responsibility/ Lecturer <i>apl. Prof. Dr. F. Hoffmann/ apl. Prof. Dr. F. Hoffmann</i>				